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BIRCH STEWART KOLASCH & BIRCH
PO BOX 747
FALLS CHURCH, VA 22040-0747

EXAMINER
KENNEDY, ADRIAN L

ART UNIT	PAPER NUMBER
2129	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary	Application No.	Applicant(s)	
	10/560,585	VATCHKOV ET AL.	
	Examiner	Art Unit	
	ADRIAN L. KENNEDY	2129	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 December 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-11 and 13-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-11 and 13-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *13 December 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Examiner's Detailed Office Action

1. This Office Action is responsive to **Amendment After Non Final**, filed **December 20, 2007**.

2. **Claims 1, 3-11, 13-22** will be examined.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 21 and 22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Specifically, the applicant has failed to defined the term "k" in the claimed invention in a way that would allow the examiner to determine what "k" encompasses. Additionally, the applicant has failed to describe specifically what the function d(k) represents. Furthermore, due to the inability to determine the scope of the applicant's claimed formulas, the claims 21 and 22 have not been examined in light of the prior art. Appropriate correction is required.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1, 3-5, 7-11, 13, 15-20 rejected under 35 U.S.C. 103(a) as being unpatentable over Delgado (Control of Nonlinear System Using a Self-Organising Neural Network, referred to as Delgado) in view of Otte (USPN 6,314,413).

Regarding claim 1 and 11:

Delgado teaches,

> Self-Organizing Map creating means (EN: The examiner takes the position that the creation of the Self-Organizing Map (SOM) is inherent in the invention of Delgado. This position is based on the fact that without creating a SOM the invention of Delgado would not have been possible.) for calculating n values (Delgado: Page(P) 114, Right Column(RC); Examiner's Note(EN): Having not further defined the applicant's claimed "n values" in the claimed invention, the examiner has found that the claimed "n values" read on the closed loop error *e* taught by Delgado.) by transforming the n parameter values into its derivative (Delgado: P 114, RC; EN: Having not further defined the applicant's claimed "derivative" in the claimed invention, the examiner has found that the claimed "derivative" reads on the closed loop error time derivative *de/dt* taught by Delgado.), including variation rates of the n parameter values, which have been detected with respect to time and that indicate a variation in the momentary state of the object, and creating a Self-Organizing Map by using detection data, obtained on the basis of the multiple combinations of both n parameter values and parameter values detected by said detecting means, as learning data (EN: The examiner takes the position that it would have been obvious to one of ordinary skill in that art at the time of invention that the input

vector which consists of error *e* and the derivative of error *de/dt* would have been used as learning data when training the SOM.);

Delgado does not teach a detecting means or the creation of a plurality of Self Organizing Maps.

However, Otte does teach

detecting means for detecting (Otte: Column(C), Lines(L) 1-10; EN: The examiner has found that the applicant's claimed "detecting" reads on the collecting taught by Otte.) a multiplicity of combinations of n parameter values, where n is a natural number (Otte: C 3, L 43-45; EN: The examiner asserts that it would have been obvious to one skilled in the art, to make the number n, taught in the invention of Otte a "natural number".), for each of a plurality of operation modes in which an object functions, which values vary with operation (Otte: C 1, L 60-64); and

wherein said Self-Organizing Map creating means creates a plurality of the Self-Organizing Maps, serving as individual separation models and corresponding one to each of the plurality of operation modes (Otte: C 1, L 60-64; C 2, L 42-44; EN: The examiner takes the position that the "separation models" representative of "operating modes" in applicant's claimed invention, are obvious in light of the SOMs taught in the invention of Otte. This position is based on the examiner's assertion that the SOMs are representative of the claimed "separation models" and correspond to each of the states (i.e. operation modes) in the invention of Otte.).

It would have been obvious to one of ordinary skill in the art at the time of invention to combine the method of control using a self-organising neural network as taught by

Delgado with the self-organizing neural network control method taught by Otte for the purpose of creating a self-organizing neural network (Otte: C 2, L 40-44).

Regarding claim 3:

Otte teaches,

said detecting means detects (Otte: C 2, L 1-10) the multiple combinations of n parameter values (Otte: C 2, L 1-10); and

said Self-Organizing Map creating means initially arranges a predetermined number of neurons (Otte: C 3, L 8-10) at random (Otte: C 5, L 11-15) in a 2n-dimensional space (Otte: C 3, L 20-22), carries out training regarding a point of the detection data in the 2n-dimensional space as a learning data point, creates a Self-Organizing Map candidate regarding a neuron having a minimum distance to the learning data point as a winning neuron (Otte: C 5, L 22-25), and selects, from two or more of the Self-Organizing Map candidates obtained by carrying out the creating of a Self-Organizing Map candidate a number of times (Otte: C 5, L 18-20), a Self-Organizing Map candidate which has a characteristic closest to that of the learning data as the Self-Organizing Map (Otte: C 5, L 15-16).

Regarding claim 4:

Otte teaches,

(Original) An information processor said Self-Organizing Map creating means calculates an average of distances of the winning neurons to the points in the learning data and a

standard deviation of the distances of the winning neurons to the points in the learning data for each of the Self-Organizing Map candidates, and selects a Self-Organizing Map candidate the average and the standard deviation of which are both minimum as the Self-Organizing Map (EN: The examiner takes the position that it would have been obvious to one skilled in the art to take the broad distance taught in Otte and specifically claim that the distance is an "averages of distances" and that the distance is a "standard deviation".).

Regarding claim 5:

Otte teaches,

(Original) An information processor wherein, if there is no Self-Organizing Map candidate the average and the standard deviation of which are both minimum, said Self-Organizing Map creating means selects a Self-Organizing Map candidate the average of which is minimum as the Self-Organizing Map (EN: The examiner takes the position that it would have been obvious to one skilled in the art to take the broad distance taught in Otte and specifically claim that the distance is an "averages of distances" and that the distance is a "standard deviation".).

Regarding claim 7:

Otte teaches,

a storage unit for storing individual separation models (EN: The examiner asserts that the "storage unit" as claimed by the applicant is inherent in the invention of Otte. Otte teaching the creation and modification of his SOMs (i.e. separation models)in the form of

the plural of the Self-Organizing Maps, created one for each of the plurality of operation modes by an information processor defined in claims 1;

said detecting means (Otte: C 2, L 1-10); and

judging means for judging which operation mode an operation of the object corresponds to based on a relative distance between a detection data point in 2n dimension corresponding to detection data obtained by said detecting means in real time and a winning neuron in each of said plural Self-Organizing Maps (Otte: C 1, L 60-64; C 2, L 1-10; EN: The examiner takes the position that the applicant's claiming of a "judging means" for determining an "operation mode" is obvious in light of Otte teaching the evaluating of variables that relate to specific operating states.).

Regarding claim 8:

Otte teaches,

(Original) A state judging unit wherein said detecting means calculates the relative distance by dividing the distance between the detection data point obtained by said detecting means in real time and the winning neuron in each said Self-Organizing Map by the average of distances of the wining neurons in the Self-Organizing Map to the learning data point used in the process of creating each said Self-Organizing Map in the information processor (EN: The examiner takes the position that it would have been obvious to one skilled in the art to take the broad distance taught in Otte and specifically claim that the distance is an "averages of distances" and that the distance is a "standard deviation". Additionally, the examiner takes the position that it would have been obvious

to one skilled in the art to detect the data in "real time". Finally the examiner takes the position that the Applicant's claimed "relative distance" is obvious over the distance taught in the invention of Otte.).

Regarding claim 9:

Otte teaches,

(Previously Presented) A state judging unit wherein said judging means judges that, if the relative distance of one of said plural Self-Organizing Maps is equal to or smaller than a predetermined threshold value, the detection data point conform with the one Self-Organizing Map, and that, if the relative distance of said Self-Organizing Map is larger than the threshold value, the detection data point does not conform with said one Self-Organizing Map (Otte: C 5, L 18-20; C 5, L 22-25; EN: The examiner takes the position that the applicant's teaching of the use of a "judging means" to determine whether a data point conforms with a Self Organizing Map or not, based on whether its distance is greater than or less than a value is obvious over Otte teaching the activation or lack of activation of a neuron in a Self Organizing Map based on whether or not the neuron is within or exceeds a certain distance value.).

Regarding claim 10:

Otte teaches,

(Previously Presented) A diagnostic unit, including a state judging unit, for diagnosing the object, wherein the object is a machine including a construction machine (Otte: C 1, L

56-59), and the plural operation modes represent a particular operation performed by said machine (Otte: C 1, L 60-64).

Regarding claim 13:

Otte teaches,

the multiple combinations of n parameter values (Otte: C 2, L 1-10) are detected in said step of detecting (Otte: C 2, L 1-10);

and

said step of Self-Organizing-Map includes,

creating a Self-Organizing Map candidate by initially arranging a predetermined number of neurons (Otte: C 3, L 8-10) at random (Otte: C 5, L 11-15) in a 2n-dimensional space (Otte: C 3, L 20-22), carrying out training regarding a point of the detection data in the 2n-dimensional space as a learning data point and creating a Self-Organizing Map candidate regarding a zero-on having a minimum distance to the learning data point as a winning neuron (Otte: C 5, L 22-25), and selecting, from two or more Self-Organizing Map candidates created by carrying out said step of creating a Self-Organizing Map candidate a number of times (Otte: C 5, L 18-20), a Self-Organizing Map candidate which has a characteristic closest to that of the learning data as the Self- Organizing Map (Otte: C 5, L 15-16).

Regarding claim 15:

Otte teaches,

when a Self-Organizing Map for a new operation mode of the object other than the plural operation modes is added (Otte: C 2, L 1-10),

the n parameter values are detected (Otte: C 2, L 1-10) by said step of detecting while the object is functioning in the new operation mode by said step of detecting (Otte: C 1, L 60-64), and

a Self-Organizing Map for the new operation mode is created (Otte: C 2, L 1-10) regarding detection data based on a multiplicity of combinations of the parameter values that have been detected as learning data by said step of Self-Organizing-Map creating.

Regarding claim 16:

Otte teaches,

detecting (Otte: C 2, L 1-10) the n parameter values (Otte: C 2, L 1-10) that vary with operation; and

judging which operation mode an operation of the object corresponds to based on a relative distance between a detection data point in a 2n-dimensional space corresponding to detection data obtained in real time in said step of detecting and a winning neuron in each of the plural Self-Organizing Maps (Otte: C 1, L 60-64; C 2, L 1-10; EN: The examiner takes the position that the applicant's claiming of a "judging means" for determining an "operation mode" is obvious in light of Otte teaching the evaluating of variables that relate to specific operating states.).

Regarding claim 17:

Otte teaches,

between said step of detecting and said step of judging, calculating n time-difference values by processing the n parameter values detected in said step of detecting (Otte: C 1, L 60-64; EN: The examiner takes the position that the applicant's claimed calculating of time difference values, would have been obvious in light of the process of collecting values a particular points in time taught by Otte.),

the operation mode of the object is judged based on 2n-dimensional data (Otte: C 3, L 20-22) including the n parameter values (Otte: C 3, L 22-26), which have been detected and which indicate a momentary state of the object (Otte: C 3, L 22-26), and the n time-difference values, which have been processing the n parameter values detected in said step of detecting and which indicate a variation in the momentary state of the object (Otte: C 3, L 22-26; EN: The examiner takes the position that the applicant's teaching of the "differentiating", would have been obvious over Otte teaching the determining of the values of "n process variables", which represent the state of the plant, at a particular time.), in said step of judging.

Regarding claim 18:

Otte teaches,

obtaining the relative distance by dividing the distance between the detection data point obtained in real time in said step of detecting and the winning neuron in the Self-Organizing Map by the average of distances of the wining neurons in each said Self-

Organizing Map to the learning data point used in the process of creating the Self-Organizing Map carried out by the information processor (EN: The examiner takes the position that it would have been obvious to one skilled in the art to take the broad distance taught in Otte and specifically claim that the distance is an "averages of distances" and that the distance is a "standard deviation". Additionally, the examiner takes the position that it would have been obvious to one skilled in the art to detect the data in "real time". Finally the examiner takes the position that the Applicant's claimed "relative distance" is obvious over the distance taught in the invention of Otte.),

if the relative distance of each said the plural Self-Organizing Maps is equal to or smaller than a predetermined threshold value (Otte: C 5, L 18-20; EN: The examiner takes the position that the applicant's teaching of the use of a "judging means" to determine whether a data point conforms with a Self Organizing Map or not, based on whether its distance is greater than or less than a value is obvious over Otte teaching the activation or lack of activation of a neuron in a Self Organizing Map based on whether or not the neuron is within or exceeds a certain distance value.),

judging the detection data point to conform with the last-named Self-Organizing Map (Otte: C 5, L 18-20; C 5, L 22-25; EN: The examiner takes the position that the applicant's teaching of the use of a "judging means" to determine whether a data point conforms with a Self Organizing Map or not, based on whether its distance is greater than or less than a value is obvious over Otte teaching the activation or lack of activation of a neuron in a Self Organizing Map based on whether or not the neuron is within or exceeds a certain distance value.), and

if the relative distance of each said Self-Organizing Map is larger than the threshold value (Otte: C 5, L 18-20; C 5, L 22-25; EN: The examiner takes the position that the applicant's teaching of the use of a "judging means" to determine whether a data point conforms with a Self Organizing Map or not, based on whether its distance is greater than or less than a value is obvious over Otte teaching the activation or lack of activation of a neuron in a Self Organizing Map based on whether or not the neuron is within or exceeds a certain distance value.),

judging the detection data point not to conform with said one Self-Organizing Map (Otte: C 5, L 18-20; C 5, L 22-25; EN: The examiner takes the position that the applicant's teaching of the use of a "judging means" to determine whether a data point conforms with a Self Organizing Map or not, based on whether its distance is greater than or less than a value is obvious over Otte teaching the activation or lack of activation of a neuron in a Self Organizing Map based on whether or not the neuron is within or exceeds a certain distance value.).

Regarding claim 19:

Otte teaches,

(Previously Presented) A diagnosing method, including a state judging method for diagnosing the object wherein the object is a machine including a construction machine (Otte: C 1, L 56-59), and the plural operation modes represent a particular operation performed by said machine (Otte: C 1, L 60-64).

Regarding claim 20:

Otte teaches,

> (Original) A diagnosing method wherein, if there is no Self-Organizing Map conforming, the particular operation is judged to be an unknown mode or an abnormal mode in said step of judging (EN: The examiner takes the position that it would have been obvious to one skilled in the art to diagnose an operation which is found not to be in the Self-Organizing Map as unknown or abnormal.).

7. Claims 6 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Delgado (Control of Nonlinear System Using a Self-Organising Neural Network, referred to as Delgado) and Otte (USPN 6,314,413, referred to as Otte) in view of Ye (USPN 6,477,469).

Regarding claims 6:

> Neither Delgado nor Otte teach the deleting of a neuron.

However, Ye does teach,

> (Previously Presented) An information processor wherein said Self-Organizing Map creating means deletes a neuron which has never become a winning neuron among neurons in the Self-Organizing Map that has been selected (C 8, L 51-53).
>
> It would have been obvious to one skilled in the art at the time of invention to combine the method of control using a self-organising neural network as taught by Delgado with the self-organizing map method of Ye for the purpose of making use of a self-organizing map (C 7, L 58-59).

Regarding claim 14:

Neither Delgado nor Otte teach the deleting of a neuron.

However, Ye does teach,

(Original) An information processing method wherein said step of Self-Organizing-Map creating further includes a sub-step of, after said sub-step of selecting a Self-Organizing Map, deleting an idling neuron which has never become a winning neuron among neurons in the Self-Organizing Map that has been selected (C 8, L 51-53).

It would have been obvious to one skilled in the art at the time of invention to combine the method of control using a self-organising neural network as taught by Delgado with the self-organizing map method of Ye for the purpose of making use of a self-organizing map (C 7, L 58-59).

Response to Arguments

Applicant's arguments filed on December 20, 2007 have been fully considered but are found to be non-persuasive. The unpersuasive arguments made by the Applicant are stated below:

In reference to Applicant's argument:

> Therefore, contrary to the Examiner's assertion that the "differentiating" (which means transforming into its derivative) would have been obvious over Otte that teaches the determining of the values of "n process variables," which represent that state of the pant, at a particular time, one skilled in the art would not utilize "n values" obtained "by transforming the n parameter values into its derivative, including variation rates of the n parameter values," as recited in claim 1.

Examiner's response:

The examiner has considered the applicant's above arguments and has respectfully withdrawn the previously made rejections under 103(a). However, a new grounds of rejection has been set forth above.

In reference to Applicant's argument:

> For example, independent claim 1 recites "applying a first subset of the set of input signals to a first neural network" and "applying a second, *different* subset of the set of input signals to a second neural network". The examiner cites Helle as teaching these limitations. However, the neural networks in Helle are trained on the same set of input signals rather than different subsets as required by independent claim 1. See, e.g., Helle's caption to Fig. 2 ("The networks are individually trained by using identical patterns, but with individually randomized initial weights"). For at least this reason, independent claim 1 and its dependent claims 5-10 are allowable over the cited art.

Examiner's response:

The examiner has considered the applicant's arguments and has found that "different" is a substantially broad term and that due to its broadness, it reads on the use of two different input patterns used to train neural networks as taught by Helle. This position is based on the fact that "different" as claimed by the applicant can cover separate (i.e. "different") inputs which are input into a plurality of networks where the inputs themselves consists of identical data, and can cover separate (i.e. "different") inputs where the inputs consist of mutually exclusive data. The problem lies in the fact that it is not clearly evident whether the applicant's claimed "subsets" are "different" merely because they are input into a "different" network (which is or isn't identical to the first), or because they consist of "different" data (i.e. mutually exclusive and/or non-identical data than that is the "other" subset). Furthermore, the applicant's claimed "different" includes the interpretation that the "subsets" are "different" because the second subset is a copy of the first

subset and because there now exist two (2) subsets where one is separate from the first. The applicant's claimed arguments are therefore found to be non-persuasive.

In reference to Applicant's argument:

> Independent claim 11 recites in part "training at least one neural network for each of at least two different subsets of the set of available inputs". The examiner cites page 109, column 1, paragraph 3 of Helle as teaching this limitation. Applicants can find no such teaching in Helle on page 109 or elsewhere. To the contrary, Helle teaches the use of the same input set for each neural network. See, e.g., caption to Fig. 2. For at least this reason, independent claim 11 and its dependent claims 14-28 are allowable over the cited art.

Examiner's response:

The examiner has considered the applicant's arguments and has found that the examiner's argument regarding the use of the term "different" applies to this argument also. The applicant's claimed arguments are found to be non-persuasive.

In reference to Applicant's argument:

> Independent claim 29 recites in part "a training process that generates a set of neural networks having diversity in inputs". The examiner cites Fig. la and p114, c1, paragraph 1 of Helle as teaching this element. Applicants can find no such teaching in Helle. To the contrary, Helle teaches the use of "identical" inputs for each neural network. See, e.g., caption to Fig. 2.

Examiner's response:

The examiner has considered the applicant's arguments and has found that the applicant's claimed use of "diversity" of inputs is substantially broad. The position is based on the fact that the "diversity" of inputs can be interpreted to include the diversity being in the type of inputs the networks receive. Furthermore, "diversity" amongst inputs including identical copies of a diverse types of inputs. For example, the applicant's claimed "neural networks having diversity

of inputs" is broad enough include neural networks receiving identical copies of either density input, sonic input, or resistivity input, where the inputs being received are themselves "diverse" while the data contained in the inputs is identical. Therefore, the applicant needs to make it clear whether "diversity" means that the inputs are diverse in type (i.e. of a varying types), whether the data contained in the inputs is diverse (i.e. mutually exclusive and/or non-identical) or both. The applicant's claimed arguments are found to be non-persuasive.

In reference to Applicant's argument:

> For example, claims 2-4 depend from independent claim 1 and thus incorporate the limitations previously identified as missing from Helle. Quirein altogether fails to teach or suggest the use of cooperative neural networks. For at least this reason, these claims are allowable over the cited art.
>
> Claims 12-13 depend from independent claim 11 and thus incorporate limitations identified above as missing from Helle. Quirein altogether fails to teach or suggest the use of cooperative neural networks.

Examiner's response:

The examiner has considered the applicant's arguments and has found that the applicant's argued limitation of the "use of cooperative neural networks" is neither mentioned nor described in the claimed invention. Furthermore, due to the fact that patent eligibility is based on the claimed invention, the applicant's arguments are found to be non-persuasive.

Conclusion

Examiner's Opinion:

The examiner has considered the applicant's arguments in light of the claimed invention.

Furthermore, the examiner respectfully reminds the applicant that "**during examination,**

the claims must be interpreted as broadly as their terms reasonably allow". (MPEP 2111.01 [R-5] I)

Should the applicant choose to amend, the Examiner respectfully suggests that the applicant consider including a statement along the lines of "wherein the operation modes are representative of the operation of construction machinery" (supported at page 21 of the specification) and "wherein the detecting means consist of one or more sensors" (supported at page 23 of the specification) in claims 1 and 11 (The previously cited suggestion is not a recitation of allowable subject matter, but is rather subject matter disclosed by the applicant which was novel in view of the prior art of record. Furthermore, any amendment will require further searching of the prior art.).

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Claims 1, 3-11, 13-22 are rejected.

Correspondence Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Adrian L. Kennedy whose telephone number is (571) 270-1505. The examiner can normally be reached on Mon -Fri 8:30am-5pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Vincent can be reached on (571) 272-3080. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ALK

David Vincent
Supervisory Patent Examiner
Technology Center 2100

/Joseph P. Hirl/
Primary Examiner, Art Unit 2129